## CLAIMS

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1/ A method of testing the operation of an electronic unit by simulation, said unit being suitable for generating logic signals at specific instants while the simulation is being performed by a simulator fitted with at least one microprocessor, said simulator sending simulated input signals to said unit and receiving output signals therefrom in response thereto, the method consisting in processing some of the output signals from said unit as they are issued by means of at least one programmable logic circuit, in storing values of parameters corresponding to said processed signals, and in causing said microprocessor to access said stored parameter values at a frequency which is compatible with its own operating frequency.

2/ A method according to claim 1, wherein said parameter values are representative of switching instants of logic signals generated by said unit.

3/ A method according to claim 2, wherein said parameter values are an image of said switching instants, of the duration during which a logic variable has a predetermined value, and/or the mean value of a logic variable over a predetermined period.

4/ A method according to claim 1, consisting in sending at least some of the signals generated by said microprocessor to at least one second programmable logic circuit and in sending simulation signals to said unit, the simulation signals being generated by said second programmable logic circuit while said microprocessor is not in communication with said unit.

35 5/ Apparatus for testing the operation of an electronic unit by simulation, said unit being suitable for generating logic signals at specific instants, said 5

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apparatus including a simulator which comprises at least one microprocessor and which is suitable for sending input simulation signals to said unit and for receiving output signals therefrom in response thereto, wherein said simulator comprises at least one programmable logic circuit suitable for receiving at least some of said output signals, said logic circuit being suitable, in real time, for generating parameter values corresponding to the signals that it receives, and for storing said parameter values, said microprocessor being suitable for acquiring said stored parameter values.

- 6/ Apparatus according to claim 5, wherein said simulator comprises at lest one second programmable logic circuit suitable, in real time, for sending simulation signals to said unit on the basis of reference signals previously issued by said microprocessor.
- 7/ Apparatus according to claim 6, wherein said 20 programmable logic circuit suitable for receiving certain output signals and said second programmable logic circuit suitable for sending simulation signals to said unit are implemented as a single electronic circuit.
- 25 8/ Apparatus according to claim 5, wherein said programmable logic circuit(s) is/are of the field programmable gate array type.
- 9/ Apparatus according to claim 5, wherein said simulator
  30 further comprises an analog-to-digital converter enabling
  digital signals representative of analog signals
  generated by said unit to be forwarded to said
  microprocessor, and/or an analog-to-digital converter
  enabling analog simulation signals based on digital
  35 signals generated by said microprocessor to be forwarded
  to said unit.

10/ Apparatus according to claim 5, wherein said logic circuit(s) is/are programmed as function of the type and/or intended use of said unit.

5 11/ An installation for testing electronic units for fitting to a rail vehicle or to an electric vehicle, the installation comprising at least one apparatus according to claim 5.